

What is claimed is:

1           1.       A system for refreshing an informational database through log-  
2       based transaction monitoring, comprising:  
3           a production database comprising one or more tables each storing records  
4       of production data generated by a transaction processing system;  
5           a log writer periodically storing log entries into a log file with at least one  
6       log entry generated for each transaction committed to the production database;  
7           an informational database comprising one or more tables each storing  
8       records of informational data for use by a decision support system; and  
9           a log monitor dynamically analyzing the log entries stored into the log file  
10       using a rule set that specifies a data selection criteria and storing updated records  
11       generated from production data satisfying the data selection criteria into the  
12       informational database.

1           2.       A system according to Claim 1, further comprising:  
2           the informational database further comprising metadata describing the  
3       structure of the informational database; and  
4           the log monitor converting the production data into the updated records  
5       based on the metadata for the informational database.

1           3.       A system according to Claim 2, further comprising:  
2           a database builder generating the metadata and defining the rule set from  
3       the data selection criteria structured as provided by the metadata.

1           4.       A system according to Claim 3, wherein the metadata comprises at  
2       least one parameter selected from the group comprising the production database  
3       and the informational database architectures, network topology information, job  
4       control information, and program code for performing the data selection.

1           5.       A system according to Claim 1, further comprising:

2 the log monitor storing the updated records into the informational database  
3 on a substantially continuous basis as a consistent data set of the production  
4 database.

1 6. A system according to Claim 1, further comprising:  
2 the log monitor creating replicas of at least one table of records selected  
3 from the informational database.

1 7. A system according to Claim 1, further comprising:  
2 the log monitor performing job control over each refreshment of the  
3 informational database with the updated records.

1 8. A system according to Claim 1, further comprising:  
2 a log monitor cache staging the updated records generated by the log  
3 monitor as a transient data set shared with the informational database.

1 9. A method for refreshing an informational database through log-  
2 based transaction monitoring, comprising:  
3 maintaining a production database comprising one or more tables each  
4 storing records of production data generated by a transaction processing system;  
5 periodically storing log entries into a log file with at least one log entry  
6 generated for each transaction committed to the production database;  
7 maintaining an informational database comprising one or more tables each  
8 storing records of informational data for use by a decision support system; and  
9 dynamically analyzing the log entries stored into the log file using a rule  
10 set that specifies a data selection criteria and storing updated records generated  
11 from production data satisfying the data selection criteria into the informational  
12 database.

1 10. A method according to Claim 9, further comprising:  
2 storing metadata describing the structure of the informational database  
3 into the informational database; and

4        converting the production data into the updated records based on the  
5 metadata for the informational database.

1        11.    A method according to Claim 10, further comprising:  
2        generating the metadata and defining the rule set from the data selection  
3 criteria structured as provided by the metadata.

1        12.    A method according to Claim 11, wherein the metadata comprises  
2 at least one parameter selected from the group comprising the production database  
3 and the informational database architectures, network topology information, job  
4 control information, and program code for performing the data selection.

1        13.    A method according to Claim 9, further comprising:  
2        storing the updated records into the informational database on a  
3 substantially continuous basis as a consistent data set of the production database.

1        14.    A method according to Claim 9, further comprising:  
2        creating replicas of at least one table of records selected from the  
3 informational database.

1        15.    A method according to Claim 9, further comprising:  
2        performing job control over each refreshment of the informational  
3 database with the updated records.

1        16.    A method according to Claim 9, further comprising:  
2        staging the updated records generated by the log monitor as a transient  
3 data set shared with the informational database.

1        17.    A computer-readable storage medium holding code for performing  
2 the method of Claim 9.

1 18. A system for maintaining large-grained database concurrency with  
2 log monitoring means incorporating dynamically redefinable business logic,  
3 comprising:

4 a source database engine executing operations expressed in a data  
5 manipulation language against a source database with at least one operation  
6 constituting a commit operation that completes each database transaction;

7 a database builder defining a current rule set with each rule comprising  
8 business logic specifying a data selection criteria for records stored in the source  
9 database;

10 means for periodically generating a log entry in a log for each transaction  
11 committed to the source database, each log entry identifying an affected record  
12 and including transactional data;

13 means for monitoring the log, comprising:

14 an evaluation module evaluating the transaction identified in each  
15 log entry against the data selection criteria specified in the current rule set; and

16 a record generation module building a new record in accordance  
17 with metadata describing a destination database and containing select  
18 transactional data from the log entry of each transaction meeting the selection  
19 criteria; and

20 a destination database engine storing the new record into the destination  
21 database with the data stored in the destination database comprising at least a  
22 partial subset of the source database.

1 19. A system according to Claim 18, further comprising:  
2 the database builder dynamically redefining the current rule set comprise  
3 business logic to specify a revised data selection criteria.

1 20. A system according to Claim 18, further comprising:  
2 the destination database engine creating a new source database as  
3 specified by the metadata.

1 21. A system according to Claim 18, further comprising:  
2 a temporary data store caching each new record.

1 22. A system according to Claim 18, wherein the transaction data  
2 comprises information selected from the group comprising a timestamp, table  
3 identifier, record identifier, operation type, and undo information.

1 23. A method for maintaining large-grained database concurrency with  
2 a log monitor incorporating dynamically redefinable business logic, comprising:  
3 executing operations expressed in a data manipulation language against a  
4 source database with at least one operation constituting a commit operation that  
5 completes each database transaction;  
6 defining a current rule set with each rule comprising business logic  
7 specifying a data selection criteria for records stored in the source database;  
8 periodically generating a log entry in a log for each transaction committed  
9 to the source database, each log entry identifying an affected record and including  
10 transactional data;  
11 evaluating the transaction identified in each log entry against the data  
12 selection criteria specified in the current rule set;  
13 building a new record in accordance with metadata describing a  
14 destination database and containing select transactional data from the log entry of  
15 each transaction meeting the selection criteria; and  
16 storing the new record into the destination database with the data stored in  
17 the destination database comprising at least a partial subset of the source database.

1 24. A method according to Claim 23, further comprising:  
2 dynamically redefining the current rule set comprise business logic to  
3 specify a revised data selection criteria.

1 25. A method according to Claim 23, further comprising:  
2 creating a new source database as specified by the metadata.

1        26.    A method according to Claim 23, further comprising:  
2        caching each new record in a temporary data store.

1        27.    A method according to Claim 23, wherein the transaction data  
2        comprises information selected from the group comprising a timestamp, table  
3        identifier, record identifier, operation type, and undo information.

1        28.    A computer-readable storage medium holding code for performing  
2        the method of Claim 23.

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